

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Currently Amended): A battery case comprising:

a base portion having a bottom and side walls forming an interior compartment for holding a battery cell and internal structural components; and

a cover portion engaging the side walls for enclosing the compartment, wherein the base portion and cover portion are formed of a flame retardant polymeric composition comprising a base polymer and a fire resistant additive, and

wherein at least one of the base portion and the cover portion includes [[a]] an uncovered vent hole through which evolved gases are permitted to freely escape.
2. (Original): The battery case of claim 1 wherein the base polymer comprises polyphenylene oxide, polypropylene, and 0-60 wt. % glass fiber.
3. (Original): The battery case of claim 1 wherein the base polymer comprises polyphenylene oxide, polypropylene, and 20-45 wt. % glass fiber.

4. (Original): The battery case of claim 1 wherein the base polymer is a thermoplastic polymer selected from the group consisting of: polyethylene, polypropylene, nylon, polystyrene, a styrene-acrylonitrile copolymer, and a butadiene-styrene-acrylonitrile terpolymer.

5. (Original): The battery case of claim 1 wherein the base polymer is a thermoset polymer selected from the group consisting of a polyurethane, rubber, a phenolic and an epoxy.

6. (Original): The battery case of claim 1 wherein the flame retardant polymeric composition comprises 10-50 wt. % of the fire resistant additive.

7. (Original): The battery case of claim 1 wherein the fire resistant additive includes intercalated graphite.

8. (Original): The battery case of claim 1 wherein the fire resistant additive comprises, on the basis of 100 parts by weight blended mixture:

20-45 parts of a polymeric binder comprising high density polyethylene having a density in the range of 0.940-0.970 g/cm³ and an α -olefin-containing copolymer having a density less than the density of the high density polyethylene;

5-25 parts of a nitrogenous gas-generating agent selected from the group consisting of amines, ureas, guanidines, guanamines, s-triazines, amino acids, salts thereof, and mixtures thereof, wherein the salts are selected from the group consisting of

phosphates, phosphonates, phosphinates, borates, cyanurates, sulfates and mixtures thereof;

10-35 parts of a water vapor-generating agent;

1-5 parts of an antioxidant; and

0-15 parts of a reinforcing agent,

wherein the additive is essentially halogen-free.

9. (Original): The battery case of claim 8 wherein the α -olefin-containing copolymer is a copolymer of ethylene with one of butene, hexene and octene having a density in the range of 0.870-0.910 g/cm³.

10. (Original): The battery case of claim 1 wherein the fire resistant additive comprises, on the basis of 100 parts by weight blended mixture:

20-45 parts of a polymeric binder comprising high density polyethylene having a density in the range of 0.940-0.970 g/cm³ and an α -olefin-containing copolymer having a density in the range of 0.870-0.910 g/cm³, wherein 20-45 parts of the blended mixture is the high density polyethylene and 0-15 parts of the blended mixture is the α -olefin-containing copolymer;

15-25 parts of a nitrogenous gas-generating agent selected from the group consisting of an ammonium salt, a melamine salt, or mixtures thereof, wherein the salts are selected from the group consisting of phosphates, phosphonates, phosphinates, borates, cyanurates, sulfates and mixtures thereof;

20-30 parts of a water vapor-generating agent selected from the group consisting

of hydrated magnesia, hydrated alumina, intercalated graphite, and mixtures thereof;

1-5 parts of an antioxidant selected from the group consisting of distearylthiodipropionate, a hindered phenol, and mixtures thereof; and

3-10 parts of a reinforcing agent selected from the group consisting of glass fibers, mica, titanium oxide and mixtures thereof, wherein the additive is essentially halogen-free.

11. (Original): The battery case of claim 1 wherein the fire resistant additive includes antimony oxide.

12. (Original): The battery case of claim 11 wherein the fire resistant additive includes a chlorinated paraffin and chlorinated polyethylene.

13. (Original): The battery case of claim 1 further comprising at least one internal structural component in the interior compartment that is made of the flame retardant polymeric composition.

14. (Original): The battery case of claim 1 wherein the cover portion includes a plurality of the vent holes.

15. (Withdrawn): A battery case comprising:

a base portion having a bottom and side walls forming an interior compartment for holding a battery cell and internal structural components; and

a cover portion engaging the side walls for enclosing the compartment,

wherein the base portion and cover portion are formed of a flame retardant polymeric composition comprising a base polymer and a fire resistant additive, wherein the fire resistant additive comprises, on the basis of 100 parts by weight blended mixture:

20-45 parts of a polymeric binder comprising high density polyethylene having a density in the range of 0.940-0.970 g/cm³ and an α -olefin-containing copolymer having a density less than the density of the high density polyethylene;

5-25 parts of a nitrogenous gas-generating agent selected from the group consisting of amines, ureas, guanidines, guanamines, s-triazines, amino acids, salts thereof, and mixtures thereof, wherein the salts are selected from the group consisting of phosphates, phosphonates, phosphinates, borates, cyanurates, sulfates and mixtures thereof;

10-35 parts of a water vapor-generating agent;

1-5 parts of an antioxidant; and

0-15 parts of a reinforcing agent, wherein the flame retardant polymeric composition is essentially halogen-free.

16. (Withdrawn): The battery case of claim 15 wherein the α -olefin-containing copolymer is a copolymer of ethylene with one of butene, hexene and octene having a density in the range of 0.870-0.910 g/cm³.

17. (Withdrawn): The battery case of claim 15 wherein the α -olefin-containing copolymer is a linear low density ethylene octene copolymer having a density in the range of 0.870-0.910 g/cm³.

18. (Withdrawn): The battery case of claim 15 wherein the additive comprises 20-45 parts of the high density polyethylene and 0-15 parts of the α -olefin-containing copolymer for a total of 20-45 parts polymeric binder.

19. (Withdrawn): The battery case of claim 15 wherein nitrogenous gas-generating agent is an ammonium salt, a melamine salt, or a mixture thereof.

20. (Withdrawn): The battery case of claim 15 wherein the nitrogenous gas-generating agent is selected from the group consisting of: melamine phosphates, melamine polyphosphates, melamine pyrophosphates, melamine cyanurates, ammonium phosphates, ammonium polyphosphates, ammonium pyrophosphates, ammonium cyanurates, and mixtures thereof.

21. (Withdrawn): The battery case of claim 15 wherein the water vapor-generating agent is selected from the group consisting of: hydrated magnesia, hydrated alumina, intercalated graphite, and mixtures thereof.

22. (Withdrawn): The battery case of claim 15 wherein the antioxidant is selected from the group consisting of: distearylthiodipropionate, a hindered phenol, and mixtures thereof.

23. (Withdrawn): The battery case of claim 15 wherein the reinforcing agent is selected from the group consisting of: glass fibers, mica, titanium oxide and mixtures thereof.

24. (Withdrawn): The battery case of claim 15 wherein the base polymer comprises polyphenylene oxide, polypropylene, and 0-60 wt. % glass fiber.

25. (Withdrawn): The battery case of claim 15 wherein the base polymer comprises polyphenylene oxide, polypropylene, and 20-45 wt. % glass fiber.

26. (Withdrawn): The battery case of claim 15 wherein the flame retardant polymeric composition comprises 10-50 wt. % of the fire resistant additive.

27. (Withdrawn): The battery case of claim 15 wherein the fire resistant additive includes intercalated graphite.

28. (Withdrawn): The battery case of claim 15 further comprising at least one internal structural component in the interior compartment that is made of the flame retardant polymeric composition.

29. (Withdrawn): The battery case of claim 15 wherein the cover portion includes a plurality of the vent holes through which evolved gases are permitted to escape.

30. (Withdrawn): A battery case comprising:

a base portion having a bottom and side walls forming an interior compartment for holding a battery cell and internal structural components; and

a cover portion engaging the side walls for enclosing the compartment,

wherein the base portion and cover portion are formed of a flame retardant polymeric composition comprising a base polymer and a fire resistant additive, wherein the base polymer comprises polyphenylene oxide, polypropylene, and 0-60 wt. % glass fiber.

31. (Withdrawn): The battery case of claim 30 wherein the base polymer comprises 20-45 wt. % glass fiber.

32. (Withdrawn): The battery case of claim 30 wherein the flame retardant polymeric composition comprises 10-50 wt. % of the fire resistant additive.

33. (Withdrawn): The battery case of claim 30 further comprising at least one internal structural component in the interior compartment that is made of the flame retardant polymeric composition.

34. (Withdrawn): The battery case of claim 30 wherein the cover portion includes a plurality of the vent holes through which evolved gases are permitted to escape.

35. (Withdrawn): The battery case of claim 30 wherein the fire resistant additive comprises, on the basis of 100 parts by weight blended mixture:

20-45 parts of a polymeric binder comprising high density polyethylene having a density in the range of 0.940-0.970 g/cm³ and an α -olefin-containing copolymer having a density in the range of 0.870-0.910 g/cm³, wherein 20-45 parts of the blended mixture is the high density polyethylene and 0-15 parts of the blended mixture is the α -olefin-containing copolymer;

15-25 parts of a nitrogenous gas-generating agent selected from the group consisting of an ammonium salt, a melamine salt, or mixtures thereof, wherein the salts are selected from the group consisting of phosphates, phosphonates, phosphinates, borates, cyanurates, sulfates and mixtures thereof;

20-30 parts of a water vapor-generating agent selected from the group consisting of hydrated magnesia, hydrated alumina, intercalated graphite, and mixtures thereof;

1-5 parts of an antioxidant selected from the group consisting of distearylthiodipropionate, a hindered phenol, and mixtures thereof; and

3-10 parts of a reinforcing agent selected from the group consisting of glass fibers, mica, titanium oxide and mixtures thereof, wherein the additive is essentially halogen-free.

36. (Withdrawn): The battery case of claim 35 wherein at least one of the base portion and the cover portion includes a vent hole through which evolved gases are permitted to escape.

37. (Withdrawn): The battery case of claim 35 wherein the cover portion includes a plurality of the vent holes through which evolved gases are permitted to escape.